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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,986	03/27/2001	John Sabat JR.	3176.1000-001	9264
21005	7590	10/15/2004	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			TON, ANTHONY T	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/818,986	<b>Applicant(s)</b> SABAT ET AL.	
	<b>Examiner</b> Anthony T Ton	<b>Art Unit</b> 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-30 and 32-35 is/are allowed.
- 6) ☒ Claim(s) 1-26,31 and 36-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

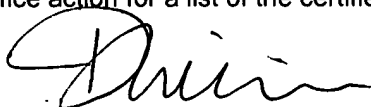
#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.



#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date three IDSs.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**PHIRIN SAM**  
**PRIMARY EXAMINER**

## DETAILED ACTION

### *Abstract*

1. **The abstract** of the disclosure is objected to because the following minor informalities:

- a) Term “A open access signal” in line 6 should be changed to “**An** open access signal”.
- b) Term “**systems** makes” in line 7 should be changed to “**system** makes”.

Correction is required. See MPEP § 608.01(b).

### *Specification*

2. **The disclosure** is objected to because of the following informalities:

- a) Term “**systems** makes” in page 4 line 14 should be changed to “**system** makes”.
- b) Term “a centralized base station **locale** 30” in page 10 line 27 is improper.

Examiner suggests changing this term to “a centralized base station **location** 30”.

- c) Term “a base **stations** 20” in page 10 line 29 is improper.

Examiner suggests changing this term to “a base **station** 20”.

- d) Term “a greater number of sectors **20**” in page 11 line 1 is improper.

Examiner suggests changing this term to “a greater number of sectors”.

- e) Term “**8:,1**” in page 12 line 28 is improper.

Examiner suggests changing this term to “**8:1**”.

- f) Term “**tenant 70**” in page 13 line 9 cannot be found in any figures of the drawings.

- g) Term “**Fig. 8**” in page 16 line 23 is not associated with Fig.7.

Examiner suggests changing this term to “**Fig. 7**”.

Appropriate correction is required.

***Claim Objections***

3. **Claims 1, 2, 12, 27, 28, 32, and 36-43** are objected to because of the following informalities:

a) In **Claim 1**: term “a **first** plurality of wireless base stations” in **line 3** is improper for the term “**first**” since there are no a **second** or a **third** plurality of wireless base stations recited in both independent claim and dependent claims.

Examiner suggests changing this term to “a plurality of wireless base stations”.

b) In **Claim 1**: term “the hub” in line 6 is not consistent with term “hub location” in line 3 and lines 9-10.

Examiner suggests changing this term to “the hub **location**”.

c) In **Claims 2 and 32**: term “A **method**” in **line 1** is not associated with “a system” as set forth in claims 1 and 27, respectively.

Examiner suggests changing this term to “A **system**”.

d) In **Claims 37-43**: term “A **system**” in **line 1** is not associated with “a method” as set forth in claim 36.

Examiner suggests changing this term to “A **method**”.

e) In **Claim 12**: term “the hub” in **line 12** is not consistent with term “hub location” in line 4.

Examiner suggests changing this term to “the hub **location**”.

f) In **Claim 12**: term “a transport formatted **signals**” in **line 15** is improper

Examiner suggests changing this term to “transport formatted signals”.

g) In **Claim 27**: term “a first wireless system air **interfaces**” in **line 2** is improper.

Examiner suggests changing this term to “first wireless system air interfaces”.

h) **In Claim 27:** term “a second base station **operated**” in **line 3** is not parallel with term “a first base station **operating**” in line 2.

Examiner suggests changing this term to “a second base station **operating**”.

i) **In Claim 27:** term “a first and second slice module” in **line 10** is improper.

Examiner suggests changing this term to “a first and second slice **modules**”.

j) **In Claim 28:** term “**AMPS**” in line 2 should be completely spelled at least once since there is no any disclosure for this abbreviation in the specification.

Examiner suggests changing this term to “**advanced mobile phone service**”.

k) **In Claim 36:** term “**the system coverage area**” in both **line 16** and **line 17** is improper.

Examiner suggests changing this term to “**the coverage area**”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-26, 31 and 36-43** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) **Claim 1** recites the limitation “**the transport signal format**” in **line 18**. There is insufficient antecedent basis for this limitation in the claim. Is this limitation the same as the limitation “a transport signaling format” as recited in lines 7-8?

b) **Claim 12** recites the limitation **“the intermediate frequency signals”** in **line 13**.

There is insufficient antecedent basis for this limitation in the claim.

c) **Claim 21** recites the limitation **“the common transport medium”** in **line 12**. There is insufficient antecedent basis for this limitation in the claim.

d) **Claim 31** recites the limitation **“the transport signal format”** in **line 4**. There is insufficient antecedent basis for this limitation in the claim.

e) **Claim 36** recites the limitations **“the service provider”** in **lines 8-9** and **“the wireless communication service provider”** in **line 12**. There are insufficient antecedent bases for these limitations in the claim since they cannot be distinguished to each other. Are these two limitations the same to each other?

f) **Claim 36** recites the limitations **“the base station equipment”** in **line 9**; **“base station equipment”** in **line 10**; and **“the base station equipment”** in **line 11**. There are insufficient antecedent bases for these limitations in the claim since they cannot be distinguished to one another.

g) **Claim 36** recites the limitation **“the base stations”** in **line 13**. There is insufficient antecedent basis for the limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-7, 11, 21-24 and 36-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ketseoglou et al.** (US Patent No. **5,732,076**) (IDS provided by the Applicants) in view of **Darcie et al.** (US Patent No. **5,519,691**) hereinafter referred to as **Ketseoglou** and **Darcie**, respectively.

a) **In Regarding to Claim 1: Ketseoglou disclosed** a system for distributing radio frequency signals in a physical area in which multiple wireless service providers wish to provide service (*see Fig.2*), the system comprising:

a plurality of wireless base stations collocated at a hub location (*Fig.2: wherein a number of the base stations 104 is considered as a plurality of wireless base stations collocated at a hub location (CATV Head End)*), the base stations receiving and transmitted radio frequency signals (*see col.7 lines 53-65*), with at least two of such base stations operating with radio frequency signals according to two different air interfaces (*see col.6 lines 28-45*);

a base station interface, also located at the hub location, for converting the radio frequency signals associated with the base stations to and from a transport signaling format (*see col.5 line 55- col.6 line 19: base station controller 105*);

a shared transport medium, for transporting the converted signals from the hub location to a plurality of remote access node locations (*see Fig.2: 118*);

radio access nodes each associated with a partial coverage area corresponding to only a portion of a total system coverage area (*see col.7 line 66- col.8 line 7: region 301 (total coverage area) is divided into a plurality of cells 103 (a partial coverage area)*), and the radio access nodes connected to the transport medium (*see Fig.2: two coupling base stations 104 located at the right top of the figure*); and

the radio access nodes further each comprising:

a plurality of slice modules (*see col.21 lines 1-13: 852 and 853 (slice modules) of an integrated base station 850 (RAN)*), with each slice module containing equipment for converting received radio frequency signals formatting according to a selected one of the air interfaces (*see col.21 lines 14-64: TDD protocol and GSM protocol (RF signals)*), to the transport signal format and from the transport signal format to the selected one of the air interfaces.

**Ketseoglou failed to explicitly disclose** a plurality of radio access nodes located at the remote access node locations; and

each slide module converts received radio frequency signals formatting according to a selected one of the air to a transport signal format and from the transport signal format to the selected one of the air interfaces.

**Darcie explicitly disclosed** such a plurality of radio access nodes located at the remote access node locations (*see Fig.2: Radio Ports 1-M*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a plurality of radio access nodes located at the remote access node locations, as taught by Darcie with Ketseoglou, so that a mobile station can be accessed to a wireless communication network effectively. **The motivation** for doing so would have been to increase the user capacity in a wireless radio network. Therefore, it would have been obvious to combine Darcie with Ketseoglou in the invention as specified in the claim; and

**Darcie also explicitly disclosed** such each slide module converts received radio frequency signals formatting according to a selected one of the air to a transport signal format



and from the transport signal format to the selected one of the air interfaces (*see abstract and col.6 lines 50-58*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such each slide module converts received radio frequency signals formatting according to a selected one of the air to a transport signal format and from the transport signal format to the selected one of the air interfaces, as taught by Darcie with Ketseoglou, so that a microcell base station/antenna unit pairs can be arranged to convert RF signals to transport signal format and vice versa. **The motivation** for doing so would have been to provide a reusable pattern of channels as in conventional cellular technology in a microcell system. Therefore, it would have been obvious to combine Darcie with Ketseoglou in the invention as specified in the claim.

**b) In Regarding to Claim 2: Ketseoglou further disclosed** the number of slice modules located in each partial system coverage area corresponding to the number of different service providers for which wireless communication service is to be provided in the respective partial system coverage area (*see col.13 lines 8-11*).

**c) In Regarding to Claim 3: Ketseoglou further disclosed** at least two of the base stations collocated at the hub are operated by wireless system service providers (*see col.5 lines 55-66: VLR database*).

**d) In Regarding to Claim 4: Ketseoglou further disclosed** at least two of the base stations operate in respective different radio frequency bands (*see col.6 line 56 – col.7 line 10*).

**e) In Regarding to Claim 5: Ketseoglou further disclosed** at least two of the transmitted radio frequency signals are of two different bandwidths (*see col.27 line 25-col.28 line 22*).

f) **In Regarding to Claim 6:** Ketseoglou further disclosed the shared transport medium is an optical fiber (*see col.5 lines 35-46*).

g) **In Regarding to Claim 7:** Ketseoglou further disclosed the shared transport medium uses a time slotted framing scheme (*see Figs.14 and 15*).

h) **In Regarding to Claim 11:** Ketseoglou further disclosed the time slotted frames are allocated to specific service providers (*see Fig.10A: 709*).

i) **In Regarding to Claims 21-24:** all claimed subject matters of these claims are the same as that of claims 1, 4-6, respectively, **except for** a first slide module that contains a suite of radio transmitter, amplifier, and antenna equipments as specified by the first air interface; and a second slide module that contains a suite of radio transmitter, amplifier, and antenna equipments as specified by the second air interface. However, **Ketseoglou inherently disclosed** such a suite of radio transmitter, amplifier, and antenna equipments throughout an integrated base station 850 (*see col.6 line 28 – col.7 line 65*). **Therefore**, the rejections to claims 1 and 4-6 are also applied to claims 21-24, respectively.

j) **In Regarding to Claim 36:** Ketseoglou teaches all claimed subject matters of this claim as set forth in claims 1 and 21, **except for** multiple wireless communication service prodders.

**Darcie also explicitly disclosed** such multiple wireless communication service prodders (*see Fig.3: Radio Group Servers A, B and C; and col.8 line 16 – col.9 line 17*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such multiple wireless communication service prodders, as taught by Darcie with Ketseoglou, so that communication information can be provided to users appropriately. **The**

**motivation** for doing so would have been to provide efficient services in a coverage area of a wireless communication network. Therefore, it would have been obvious to combine Darcie with Ketseoglou in the invention as specified in the claim.

k) **In Regarding to Claims 37-42:** all claimed subject matters of these claims are the same as that of claims 2-6 and 8, respectively, **except for** the differences as described in claim 36 above. **Therefore,** the rejections to claims 2-6 and 8 are also applied to claims 37-42, respectively, in a method as taught.

8. **Claims 8, 25 and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ketseoglou et al.** (US Patent No. **5,732,076**) in view of **Darcie et al.** (US Patent No. **5,519,691**) as applied to claims 1-7, 11 and 21-24 above, and further in view of **Vilander et al.** (US Patent Application Pub. No. **US 2004/0010609 A1**) hereinafter referred to as **Vilander**.

a) **In Regarding to Claim 8:** **Ketseoglou further disclosed** all aspects of this claim as set forth in claims 1 and 6.

**Ketseoglou failed to explicitly disclose** the shared transport medium uses SONET formatting.

**Vilander disclosed** such a shared transport medium uses SONET formatting (*see Para. [0053]: Sonet*).

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such a shared transport medium uses SONET formatting, as taught by Vilander with Ketseoglou, so that transmission information can be transmitted from a wireless communication system to mobile stations via an optical medium. **The motivation** for doing so would have been to provide a faster transmission to a communication information and make a communication

network become more reliable and efficient. Therefore, it would have been obvious to combine Vilander with Ketseoglou in the invention as specified in the claim.

b) **In Regarding to Claim 25:** all claimed subject matters of this claim are the same as that of claim 8. **Therefore.** the rejections to claim 8 are also applied to this claim.

c) **In Regarding to Claim 42:** all claimed subject matters of this claim are the same as that of claim 8. **Therefore.** the rejections to claim 8 are also applied to this claim.

***Allowable Subject Matter***

9. **Claims 12-20 and 31** would be allowable if re-written or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

10. **Claims 9, 10, 26 and 43** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. **Claims 27-30 and 32-35** are allowed.

***Examiner Information***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Anthony T Ton** whose telephone number is **571-272-3076**. The examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Ken Vanderpuye** can be reached on **571-272-3078**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-3076**.

Art Unit: 2661

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted

by : ATT.

Anthony T. Ton

*Patent Examiner*

October 04, 2004

A handwritten signature in black ink, appearing to read 'Phirin Sam', written in a cursive style.

**PHIRIN SAM  
PRIMARY EXAMINER**